

Wearable Beat to Beat Blood Pressure Monitor, Phase II

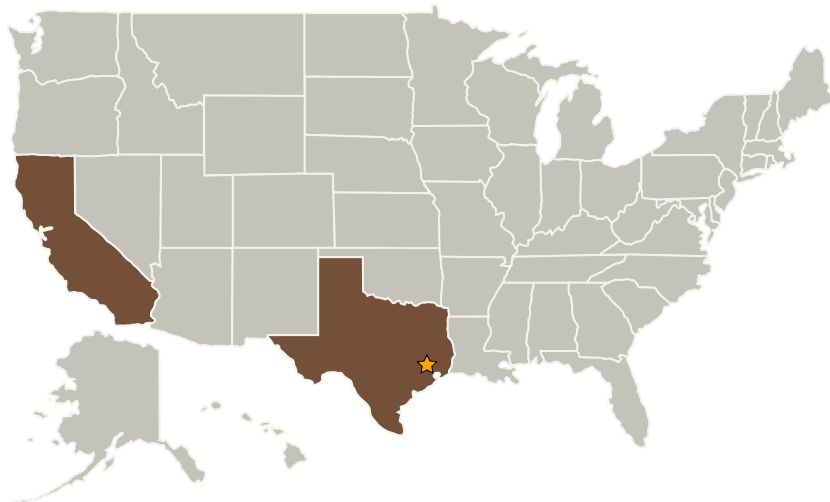
Completed Technology Project (2009 - 2011)



Project Introduction

A key component of NASA's human exploration programs is a system that monitors the health of the crew during space missions. The wearable beat-to-beat blood pressure monitor proposed by Linea Research Corporation can be used to continuously monitor the physiological effect of prolonged space missions (including exposure to reduced gravitational environments) and the effectiveness of its countermeasures. During Phase I of the program, we demonstrated the feasibility of a novel, non-invasive beat-to-beat blood pressure monitor using a lightweight (<40 g) and low-power (<100mA @ 5V) initial prototype. Measurement of beat-to-beat blood pressure was successfully verified during human studies (tilt table tests) using a cuff-based blood pressure monitor as reference. Measurement of the beat-to-beat blood pressure was also verified against an arterial line in animal (porcine) studies using epinephrine to induce blood pressure changes. During Phase II of the program, we will develop and fabricate a field-capable, light-weight, wearable beat-to-beat blood pressure monitor that will be ready for demonstration on space missions. In addition to supplying the blood pressure monitors for use by NASA, Linea plans to introduce the technology for use in ambulatory blood pressure monitors. Linea will subsequently introduce the technology for integration into high acuity as well as home based blood pressure monitors. One patent has been filed and three are currently being prepared to protect the intellectual property. A business plan has been prepared to address the commercialization opportunities.

Primary U.S. Work Locations and Key Partners



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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Johnson Space Center (JSC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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Organizations Performing Work	Role	Type	Location
★ Johnson Space Center(JSC)	Lead Organization	NASA Center	Houston, Texas
Linea Research Corporation	Supporting Organization	Industry	Palo Alto, California

Primary U.S. Work Locations

California	Texas
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Project Transitions

**February 2009:** Project Start**February 2011:** Closed out

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Technology Areas

Primary:

- TX06 Human Health, Life Support, and Habitation Systems
 - └ TX06.3 Human Health and Performance
 - └ TX06.3.3 Behavioral Health and Performance